IN THE CLAIMS

1. A transmitter for transmitting a transmit signal having a transmit frequency within a transmit frequency band, comprising:

a high-low signal generator for generating an LO signal having an LO frequency lower than said transmit frequency band when said transmit frequency is in a lower part of said transmit frequency band and an LO frequency greater than said transmit frequency when said transmit frequency is in an upper part of said transmit frequency band; and

an upconverter for using said LO signal for frequency upconverting an intermediate frequency (IF) signal to said transmit signal.

2. The transmitter of claim 1, further comprising:

a digital to analog converter (DAC) using a sampling clock signal having a sampling clock frequency for converting a digital signal to said IF signal, said IF signal having an IF frequency band having IF channel frequencies corresponding to transmit channel frequencies in said lower part of said transmit frequency band and having the same said IF channel frequencies corresponding to different transmit channel frequencies in said upper part of said transmit frequency band.

3. The transmitter of claim 2, wherein:

said sampling frequency is about equal to a sum of a fraction of the width of said transmit frequency band plus a lower IF frequency times a sum of one plus a ratio of an alias frequency to an upper IF frequency, said lower IF

frequency and said upper IF frequency bounding said IF frequency band and said alias frequency at said sampling clock frequency minus said upper IF frequency.

4. The transmitter of claim 3, wherein:

said fraction is at least one-half and less than one.

5. The transmitter of claim 3, wherein:

said fraction is about one-half.

6. The transmitter of claim 3, further comprising:

a digital signal processor for receiving transmit information and issuing a DSP signal carrying said transmit information;

a channel select IFLO generator for generating an IFLO signal having an IFLO frequency controlled according to a desired one of said transmit channel frequencies;

a digital multiplier using said IFLO signal for converting said DSP signal to said digital signal; and

an IF filter coupled to the DAC for passing said IF signal to said upconverter and suppressing said alias signal.

7. A method for transmitting a transmit signal having a transmit frequency within a transmit frequency band, comprising:

generating an LO signal having an LO frequency lower than said transmit frequency band when said transmit frequency is in a lower part of said transmit frequency band and an LO frequency greater than said transmit frequency

when said transmit frequency is in an upper part of said transmit frequency band; and

using said LO signal for frequency upconverting an intermediate frequency (IF) signal to said transmit signal.

8. The method of claim 7, further comprising:

converting a digital signal to said IF signal using a sampling clock signal having a sampling clock frequency, said IF signal having an IF frequency band having IF channel frequencies corresponding to transmit channel frequencies in said lower part of said transmit frequency band and having the same said IF channel frequencies corresponding to different transmit channel frequencies in said upper part of said transmit frequency band.

9. The method of claim 8, wherein:

said sampling frequency is about equal to a sum of a fraction of the width of said transmit frequency band plus a lower IF frequency times a sum of one plus a ratio of an alias frequency to an upper IF frequency, said lower IF frequency and said upper IF frequency bounding said IF frequency band and said alias frequency at said sampling clock frequency minus said upper IF frequency.

10. The method of claim 9, wherein:

said fraction is at least one-half and less than one.

11. The method of claim 9, wherein:

said fraction is about one-half.

12. The method of claim 9, further comprising:

generating a DSP signal carrying transmit information;

generating an IFLO signal having an IFLO frequency controlled according to a desired one of said transmit channel frequencies;

using said IFLO signal for converting said DSP signal to said digital signal; and

passing said IF signal for upconversion by said LO signal while suppressing said alias signal.